



## Prevalence of Activity Limitation among Adults in New York State, 1993-1998

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### Introduction

Disability is a major public health problem in the United States, resulting in reductions in quality of life and increasing dependence on the health-care system by the nation's population. About 35 million Americans have disabling conditions that interfere with their life activities. Disabilities are disproportionately represented among minorities, the elderly, and lower socioeconomic populations.<sup>1</sup> Disability is generally assessed through self-report of difficulty or need for help in performing basic self-care activities. A measurable aspect of the prevalence of disability in a given population is that of limitation in activity caused by chronic health disorders, injuries and impairments. Estimates of activity limitations derived from the 1992 National Health Interview Survey (NHIS) show that 18.2% of the adult, civilian, non-institutionalized, U.S. population reported some degree of activity limitation due to a chronic condition.<sup>2</sup>

The prevalence of activity limitation has been shown to vary directly by age and inversely by level of education. Moreover, females are more likely to be limited in activity than males. Among racial/ethnic subgroups, Asians and Pacific Islanders have reported the lowest rate of limitation, while Native Americans, non-Hispanic blacks, and non-Hispanic whites have reported the highest rates.<sup>2</sup> Reports of trend data have shown that the prevalence of self-reported activity limitation among most age and sex groups generally increased in the 1970s but leveled off or began to decline in the 1980s.<sup>3</sup>

The major causes of activity limitation vary with age. In general, younger adults (18-44 years old) have reported back disorders as the most prevalent condition, while adults older than 45 years have identified heart disease as the most prevalent major cause.<sup>2</sup>

This report summarizes prevalence estimates of activity limitation in New York State for the years 1993 through 1998 using data drawn from a population-based survey of state residents, the Behavioral Risk Factor Surveillance System (BRFSS).

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## Methods

The data source for the estimation of the prevalence of activity limitation is the Behavioral Risk Factor Surveillance System (BRFSS), which was introduced in New York State in 1983 and has been conducted annually since 1985 under funding and technical assistance from the Centers for Disease Control and Prevention (CDC). Standardized questions developed by CDC are administered via a telephone survey limited to the adult (18 and older), non-institutionalized population. This survey provides state-specific information on behaviors and risk factors for chronic and infectious diseases and other health conditions among the adult population. Each year since 1993, the BRFSS has made available optional modules for collecting data on functional status by addressing activity limitations among the respondents. The New York State Department of Health has included the module in each year's survey administration from 1993 to 1998. In 1993 and 1994, the 13-item module was titled "Activity Limitations." The 1995 module was expanded to 29 items and was titled "Years of Healthy Life/Quality of Life." The 1996 and 1997 optional modules, titled "Quality of Life," consisted of 10 items. In 1998, several disability-specific items were added to the original quality-of-life module to form a 19-item "Quality of Life and Disabilities Prevention" optional module.

The definition of "activity limitation" for the purposes of this report was in large part dependent on the calendar year of the BRFSS survey administration. While sharing many common items, the questionnaire modules pertaining to activity limitations differed from year to year in several respects, including length and skip patterns. Additionally, from 1993 to 1995, the wording and order of limitation-related items differed depending on the age of the respondent. This segregation of items was an attempt to address the differences in activities usually associated with a person's age group. For the elderly population, the presence of an activity limitation was determined by an affirmative response to a single question: "Are you limited in any way in any activities because of any impairment or health problem?" In addition to this

item, the working-age population (18-69 in 1993; 18-64 in 1994-95) also responded to questions about limitations in working or keeping house. From 1996 to 1998, however,

this age-group distinction was not used. In the 1998 data, activity limitation was further defined by an affirmative response to items on work limitation, mental limitation, or use of special equipment to get around.

Given the surveillance nature of this report, a person was classified as having an activity limitation by responding in the affirmative to any item or combination of items that would lead to the asking of the follow-up items dealing with assistance in personal care needs and routine needs. The comparison of prevalence estimates across calendar years must therefore be made with caution, given the differences in module make-up. The three modules for years 1996 through 1998, however, are sufficiently similar to permit some confidence in making inter-year comparisons.

The resulting constructed variable for activity limitation was assessed across calendar years. Within each year, the prevalence of limitation was broken down by categories of selected sociodemographic variables. The percentages of activity limitation within subgroup are presented in descriptive form by use of bar charts, which provided visual illustrations of temporal trends. Weights were applied to adjust for the selection probabilities and the estimates of age-sex-race distribution of adults in the state for each of the calendar years.

From 1995 to 1998, the questionnaire included an item that elicited the major impairment or health problem that caused the reported activity limitation: "What is the major impairment or health problem that limits your activities?" Thirteen specific impairments were listed, with an additional response category of "other impairment/problem." The responses to this item were summarized by ranking the two most prevalent activity-limiting conditions across the four years among the two age categories of 18-64 years and 65 years and older.

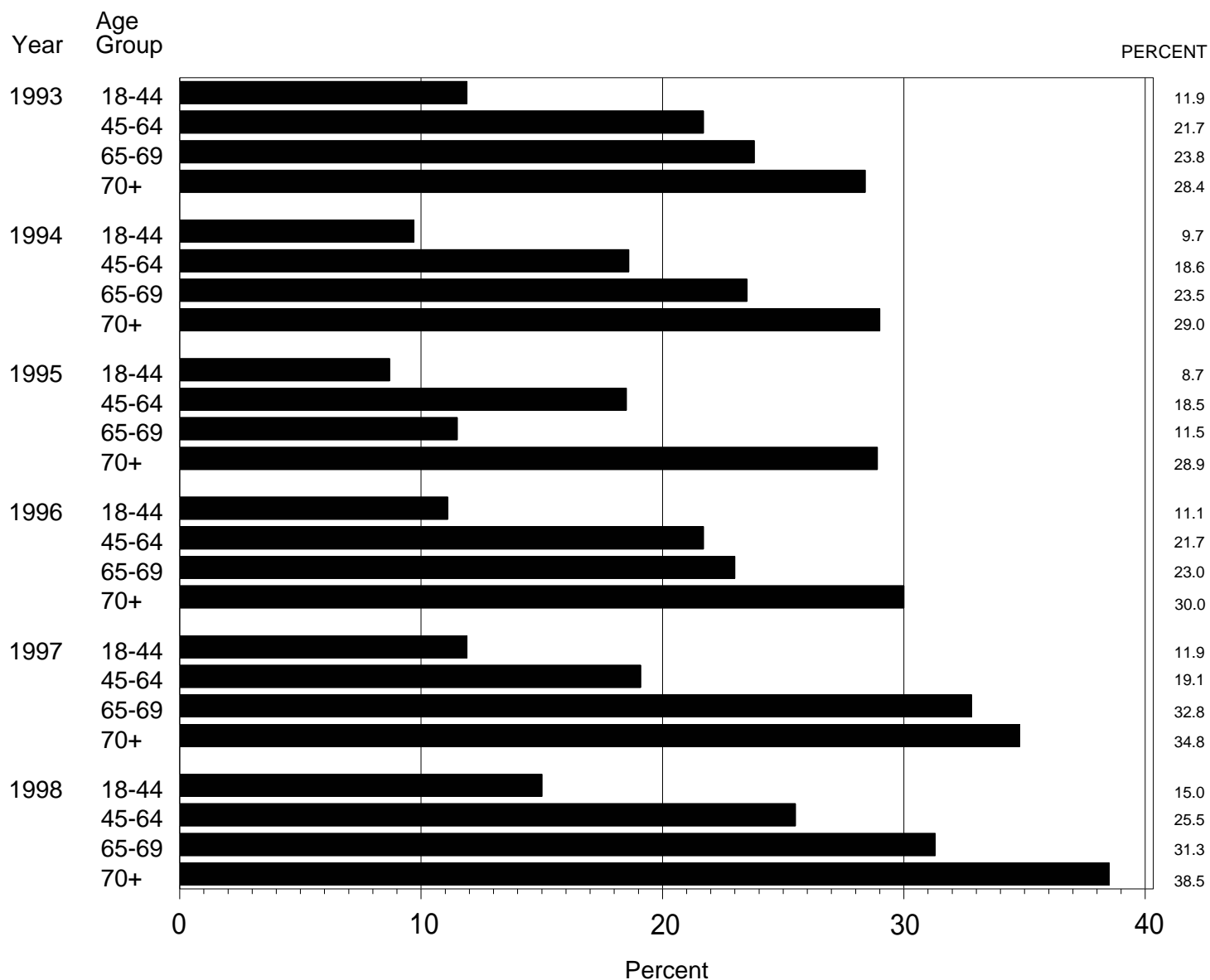
## Results

Estimates of the prevalence of activity limitation among the adult, non-institutionalized population in New York State are presented in graphic form as Figures 1-5. Prevalence is represented by weighted percentages within subgroups of persons defined as being activity-limited. The results for 1996-1998 will be particularly noted, given the relative stability of the quality-of-life module across these three years.

The results by age group are presented in Figure 1, with four groups represented: two (18-44 and 45-64) generally considered as “working-age,” and two elderly groups (65-69 and 70+). The pattern of limitation by age category was fairly consistent, both within and across years. The roughly linear relationship between age and limitation was evident in each calendar year, with the exception of 1995. The lowest reporting of

limitation was among the younger working-age respondents, ranging from 8.7% to 15.0%. In contrast, respondents in the two oldest age groups reported substantially more limitation. In particular, the group of persons age 70 and older showed prevalence estimates ranging from 28.4% to 38.5%. Moreover, from 1996 to 1998, a mild, increasing trend in limitation was evident within the two oldest age groups.

FIGURE 1. Prevalence of Activity Limitation Among NYS Adults, by Year and Age Group

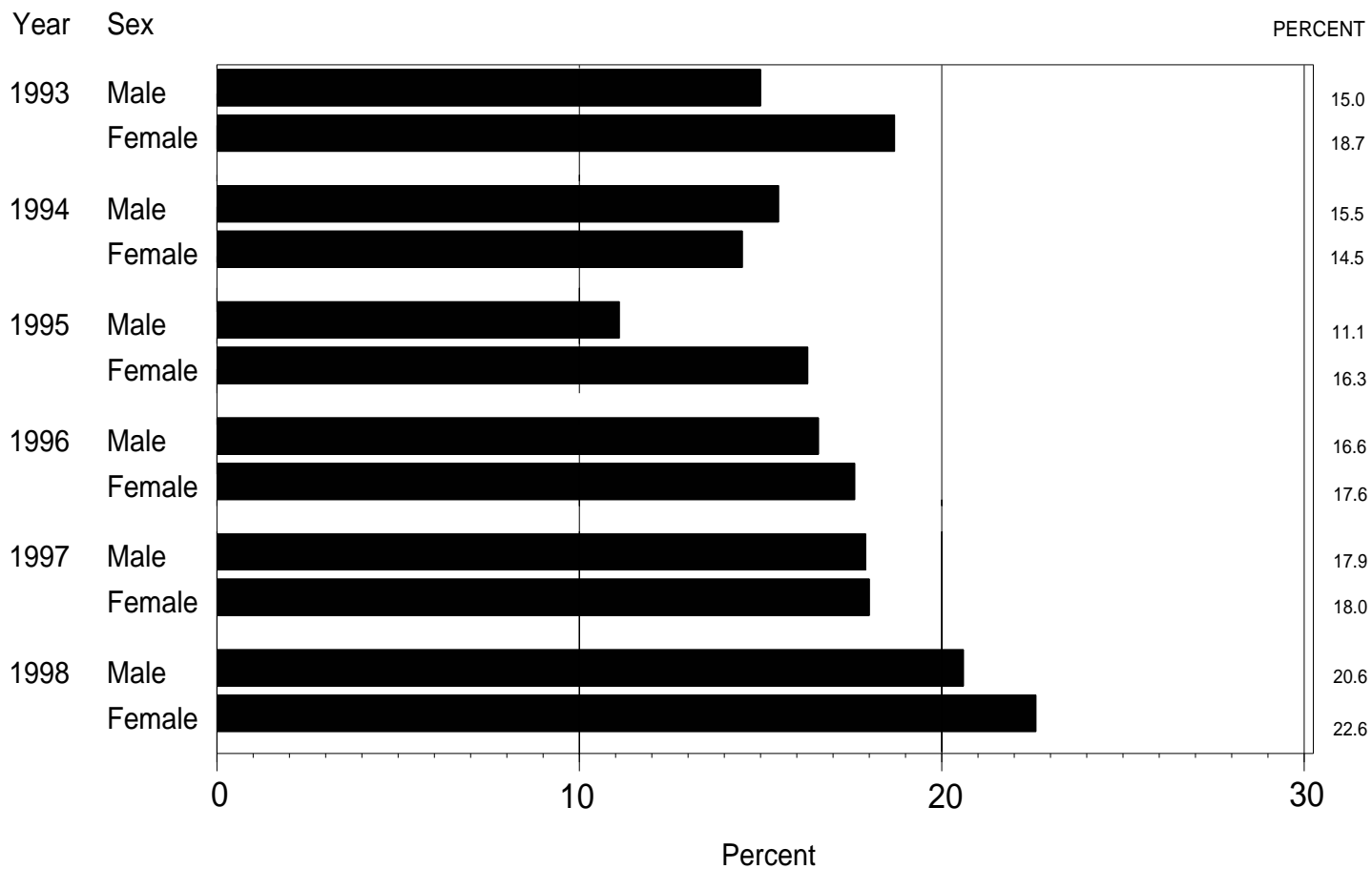


Source BRFSS

Results for prevalence estimates by gender are presented in Figure 2. The pattern of equal or higher limitation among females generally held for all years except 1994, although the differences were slight.

Percentages for males ranged from 11.1% to 20.6%; those for females from 14.5% to 22.6%. Similar to the results by age, a modest increasing trend for both genders was noted for the years 1996 to 1998.

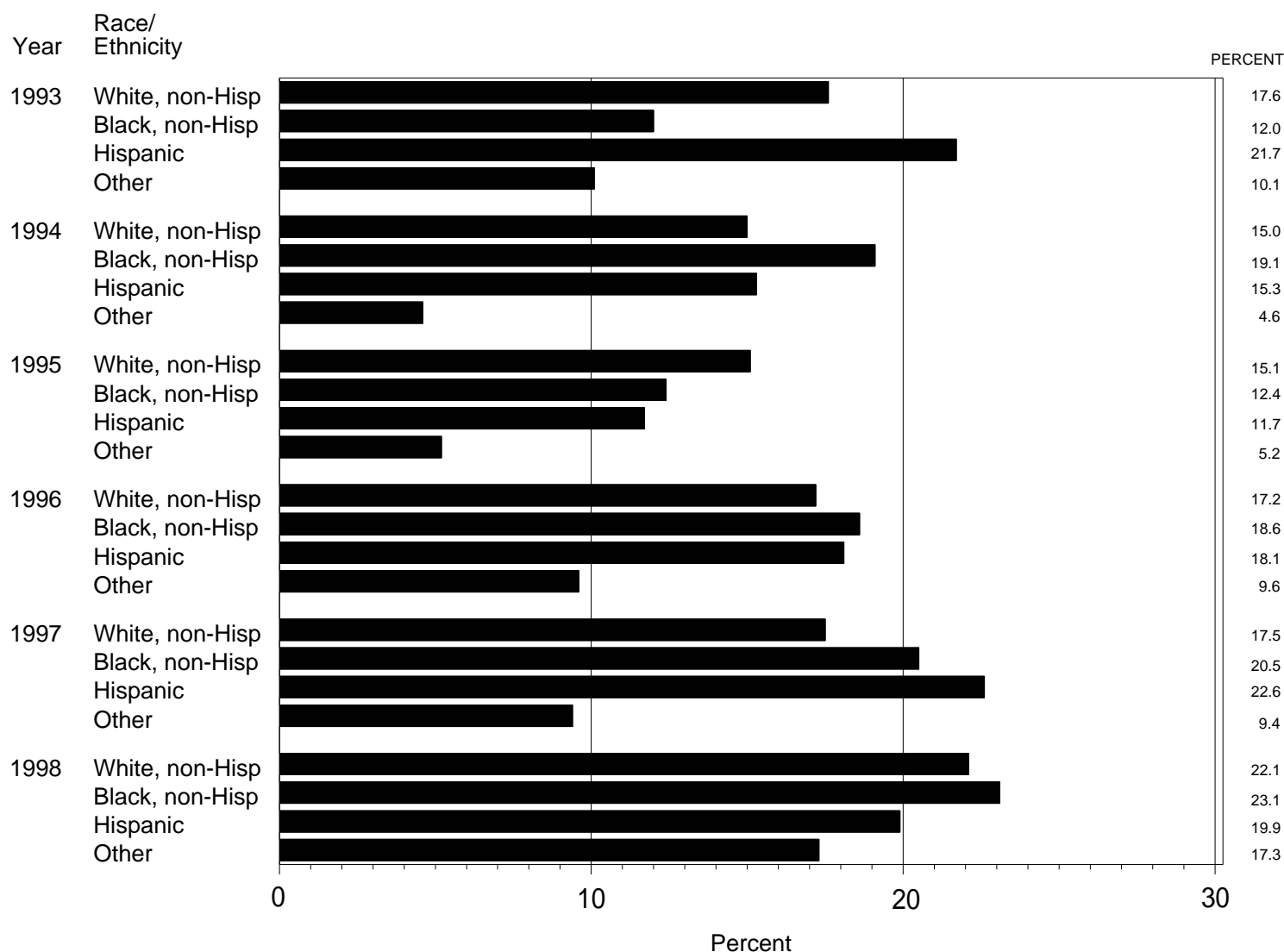
FIGURE 2. Prevalence of Activity Limitation Among NYS Adults, by Year and Sex



Activity limitation among four different race/ethnicity groups are shown in Figure 3. Within years, little consistency in the prevalence estimates among the subcategories was found, with the notable exception of the “other race” category. This group included the race classifications of Asian/Pacific

Islander and American Indian/Alaska Native. The prevalence of activity limitation within this subgroup was the lowest in every year, ranging from 4.6% to 17.3%. Even this group, however, continued the pattern of increasing limitation from 1996 to 1998.

FIGURE 3. Prevalence of Activity Limitation Among NYS Adults, by Year and Race/Ethnicity



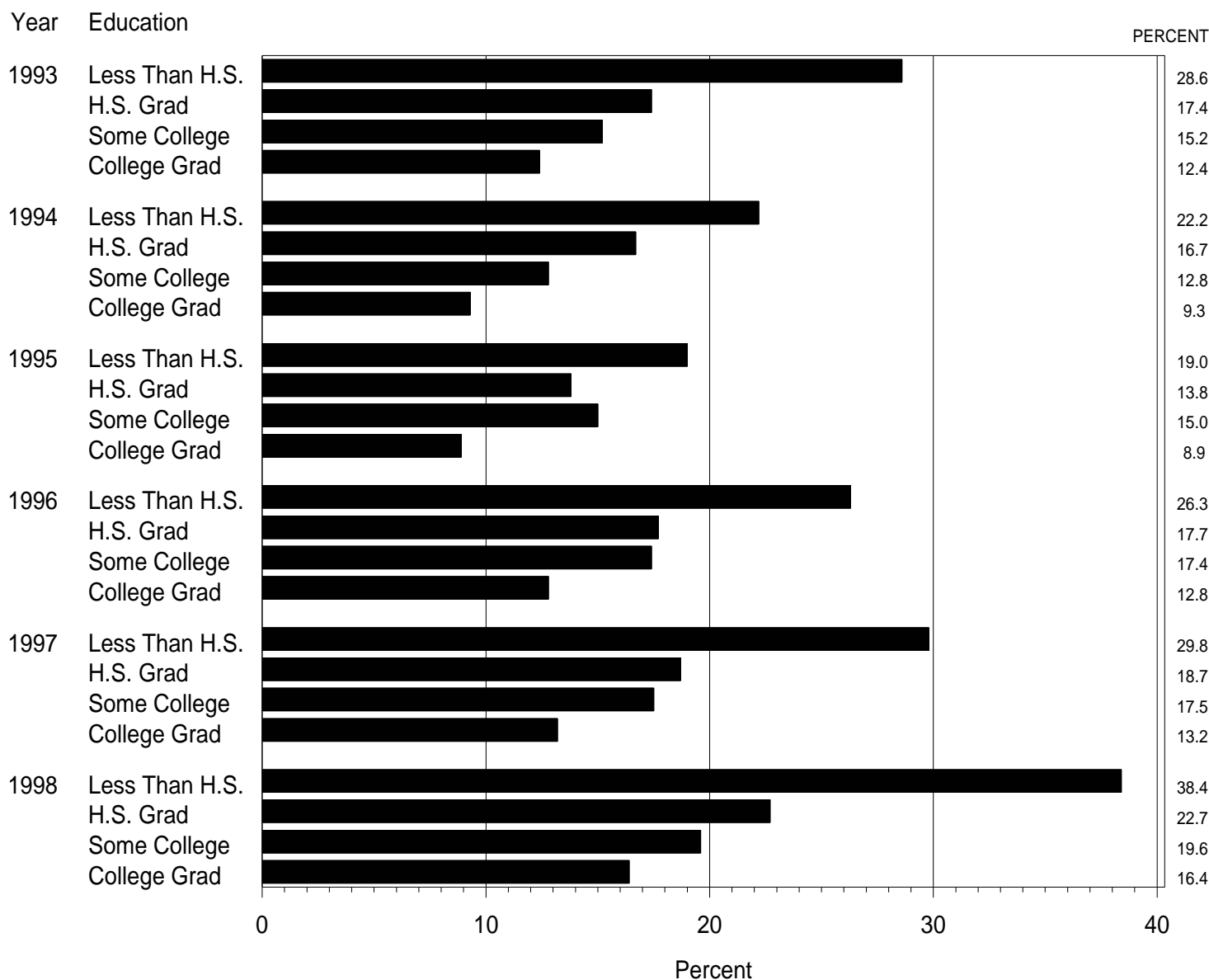
Source BRFSS

Behavioral  
Risk  
Factor  
Surveillance  
System

The results by four levels of education are presented as Figure 4. The relative pattern of limitation was strikingly consistent regardless of calendar year. An inverse relationship between limitation and level of education was persistent. Those respondents with less than a high school education were found to have clearly

the highest prevalence of an activity limitation, ranging from 19.0% to 38.4%. In contrast, the pattern of the lowest prevalence among college graduates was just as striking, ranging from 8.9% to 16.4%. The increasing trend in limitation from 1996 to 1998 was again evident among all subgroups.

FIGURE 4. Prevalence of Activity Limitation Among NYS Adults, by Year and Education



The two most frequently reported impairments are listed, by age group, in Table 1 for years 1995 to 1998, the only years for which these data were available. As noted, the most frequently identified impairment among the working-age population was back or neck problems for every year except 1998, in which it was ranked second. Roughly a quarter of those aged 18-64 selected this as the major cause of their activity limitation. The

most frequently reported impairment in every year among the elderly, aged 65 and older, was arthritis or rheumatism, ranging from 16.4% to 24.7%. Noteworthy is the relatively high percentages of those who reported “other impairments” as the major cause of their limitation. This selection was in the top five for every age group across all years except 1997 for those aged 65 and older.

**Table 1. Activity-Limiting Conditions with Highest Prevalence among NYS Adults, Main Causes of Limitation, by Year and Age Group**

Year	Age Group	Impairment	Percent
1995	18-64	Back or neck problem	25.6
		Other impairment	25.5
	65+	Arthritis/rheumatism	23.6
		Stroke problem	20.3
1996	18-64	Back or neck problem	22.4
		Other impairment	17.7
	65+	Arthritis/rheumatism	24.7
		Heart problem	18.6
1997	18-64	Back or neck problem	24.3
		Other impairment	21.2
	65+	Arthritis/rheumatism	16.4
		Heart problem	16.2
1998	18-64	Other impairment	24.3
		Back or neck problem	21.4
	65+	Arthritis/rheumatism	18.7
		Other impairment	15.1

## Discussion

This report has summarized the prevalence (by weighted percentage) of activity limitation across six consecutive calendar years (1993-1998) of BRFSS data. The results were further broken down by categories of age, gender, race and education. In addition, the 1995-1998 data were used to identify the two most frequently identified, major causes of the limitation among working-age and elderly respondents.

The assessment of temporal trends was inconclusive. The interpretation of results across calendar years was hampered by the differing make-up (length, skip pattern) of the modules from year to year, although the wording of the standard items did not change. Perhaps the most stable data for temporal comparisons were for the three-year period 1996-1998. The overall results for this period suggested a modestly increasing trend in limitation. In 1996, 17.1% of the adult population reported a limitation in activity. In 1997, this proportion rose slightly to 18.0%. In 1998, the percentage with an activity limitation increased to 21.7%.

The most consistent results within years were the direct relationship between age and limitation, the inverse relationship of education levels and limitation, and the relatively low prevalence of limitation among the “other race” response category. The increased prevalence of activity limitations among the elderly is of special concern from a public health standpoint. The growth in the numbers of elderly people in the population in both absolute and relative terms is continuing. In the mid-1980s, there were about 28 million people in

the United States aged 65 and older. The U.S. Bureau of the Census has predicted about twice as many, 59 million, by the year 2025.<sup>4</sup> Moreover, due to declines in both fertility and mortality, including mortality among the older age groups, the proportion of the population that is elderly is continuing to increase. This “aging of America” and its accompanying burden of disease and disability has profound public health implications for the utilization of medical care and need for supportive and long-term care. The measurement and surveillance of the indicators of disability such as activity limitation will be critical to monitoring the impact of this important public health issue.

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